EPA United States Environmental Protection Agency

Region 10

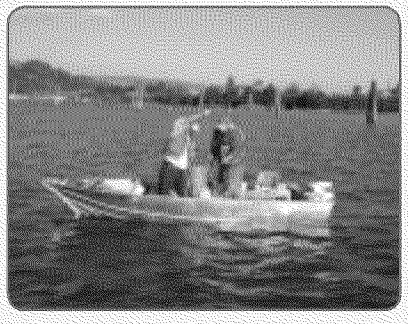
# Portland Harbor Human Health Risk Assessment Summary

Portland, Oregon

April 2013

## How are People Exposed to Contaminants?

*Eating fish and shellfish*



*Infant consumption of breast milk from mothers exposed to contaminants*

*Direct contact with sediment*

The **Final Human Health Risk Assessment** for Portland Harbor Superfund Site is available for review. This fact sheet provides a summary of information in the report. EPA has determined that risks posed by the Portland Harbor site are high enough to take action under the Superfund Law.

## What is a Human Health Risk Assessment?

The risk assessment evaluates the exposure pathways, or ways which people may come into contact with contaminants in Portland Harbor, and estimates the amount of exposure, known as the "dose." These levels of exposure are then compared to an exposure level EPA considers would not cause adverse health effects. For those contaminants known or suspected to cause cancer, EPA estimates the chance, or "risk" of getting cancer based on the exposure levels.

## Who Might be Exposed to Contaminates at Portland Harbor?

EPA evaluated human activities that could result in direct contact exposure. Because the risk assessment focused only on contamination found in the river, and not at upland properties, we focused on those activities that are directly associated with river uses. These include:

- people who work on the docks or shore
- those workers who are actually "on the water"
- divers
- transient people who may live along the river
- people who are engaged in recreational activities
- people who catch and consume fish caught from the river
- people who may use water from the river as source of household water
- tribal members who use the river and its resources for traditional and ceremonial purposes
- infants who may be breast fed by mothers who may have been exposed to contaminants from Portland Harbor.

## How Are People Exposed to Contaminants?

Fishing within Portland Harbor is done from boats and from locations along the banks. For many people, fish caught from the river represent a supplemental food source, either because they simply like to eat the fish they catch, or are subsistence fishers. **Subsistence fishing** refers to fishing that provides a supplemental source of food, up to a substantial portion of the diet for the fisher and/or family of the person doing the fishing, although fish are not an exclusive source of protein in their diet. Tribal fishing for both subsistence and ceremonial purposes is also a key activity along the river.

Fish accumulate contaminants such as polychlorinated biphenols (PCBs) in their tissue. Although fish species such as salmon and steelhead migrate through Portland Harbor and the Willamette River, **resident fish**, such as bass, catfish and carp, may spend their entire life cycle in Portland Harbor.

Many of the contaminants found in Portland Harbor, such as PCBs, are often found in fatty tissues and milk fat. As a result, breast fed infants can be indirectly exposed to these contaminants if their mothers have been exposed to contamination from Portland Harbor.

Direct contact exposure to Portland Harbor contaminants occurs when a person comes into contact with contaminated shoreline or river sediment while engaged in recreational activities, living, or working in the area. For example, for dockside workers it might involve getting sediments on their skin, or accidentally ingesting small amounts through unintentional hand-to-mouth transfer. For transient communities, it may involve contact from beach sediment, during bathing in or drinking untreated river water. In some cases, these exposures are of greater concern for children than for adults.

**Specifically, the exposure pathways evaluated in the Portland Harbor Human Health Risk Assessment include:**

- Consumption of fish and shellfish taken from Portland Harbor. The assessment considered recreational, subsistence, and tribal fishers who supplement their diet with fish caught in Portland Harbor.
- Infant consumption of human breast milk from mothers who are exposed to contaminants from Portland Harbor.
- Direct contact with in-water or shoreline sediment while recreating, living, or working in- or along the river.

In order to avoid underestimating the possible exposure and thus the health risks, EPA identifies a "Reasonable Maximum Exposure" when conducting a risk assessment. This represents the highest exposure that could reasonably be expected to occur.

## Summary of Results

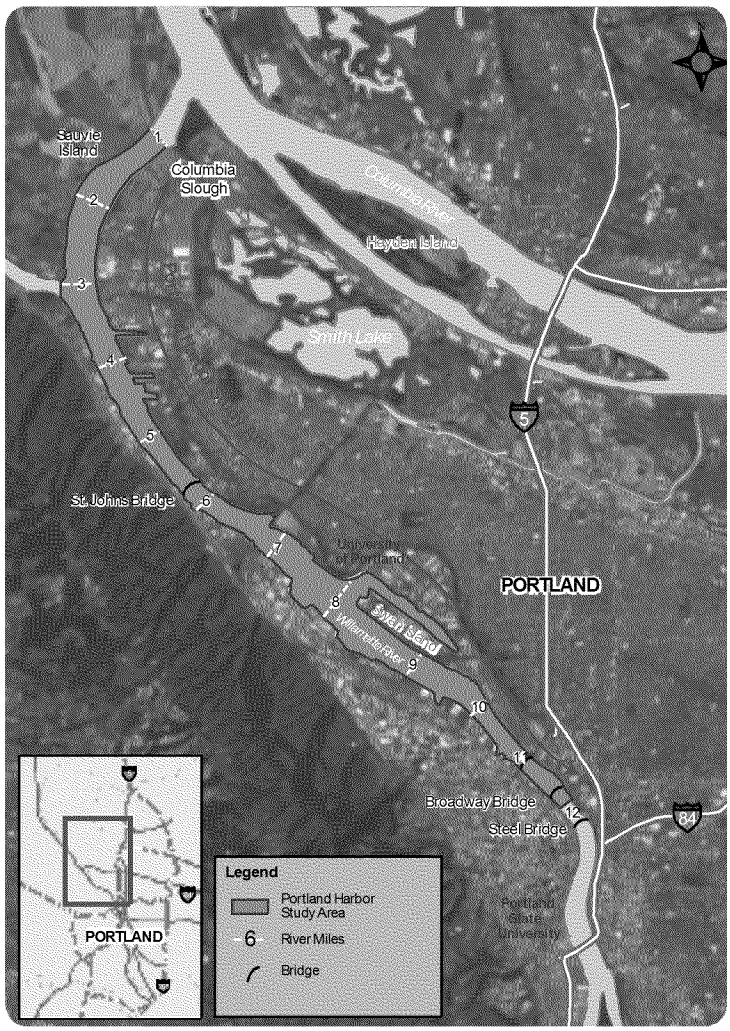
### General Conclusions

Eating resident fish from Portland Harbor is a health risk, especially for recreational and subsistence fishers, and infants that are breast fed by mothers who consume resident fish. PCBs are the primary contaminant associated with most of the risk from eating Portland Harbor fish. These health risks are great enough for EPA to consider a cleanup is needed under the Superfund law.

### Specific Conclusions

- Eating resident fish species consistently results in the greatest risk estimates, with cancer risks higher for subsistence fishers than are recreational fishers.
- Non-cancer hazard estimates for consumption of resident fish at all river miles are high enough to take action.
- PCBs are the primary contributor to risk from fish consumption harbor wide.
- The highest non-cancer hazards are associated with nursing infants of mothers who eat resident fish from Portland Harbor. PCBs are the primary contributors to the non-cancer hazard to nursing infants.

# Next Steps and Community Involvement




## Portland Harbor Background:

In 2000, Portland Harbor was named a Superfund Site. The Portland Harbor Study Area consists of the Lower Willamette River from Sauvie Island (approximately river mile 2) to the Broadway Bridge in downtown Portland (approximately river mile 11). Over the past century, many different contaminants have been released into the river and adjacent upland properties. The contaminants of concern at the site include:

- **polychlorinated biphenyls** (PCBs, a banned coolant fluid and also found in certain building materials and ink)
- **dioxins and furans** (byproducts of industrial processes)
- **polycyclic aromatic hydrocarbons** (PAHs, a combustion product and also found in coal tars)
- **pesticides** (such as DDT, an insecticide banned in 1972)
- various **heavy metals** (including lead, zinc, copper, arsenic, chromium and cadmium)

The Lower Willamette Group (LWG) is responsible for preparing the remedial investigation, risk assessments, and the feasibility study for EPA review and approval. These are key documents that will be used by EPA to determine a cleanup strategy for Portland Harbor.

## How Can I Get Involved?

One way people get involved is by participating with the Portland Harbor community advisory group (CAG). The CAG is made up of members of the community and is designed to serve as the focal point for the exchange of information about Port-land Harbor cleanup activities. CAG meetings are held on the **second Wednesday** of every month at 6:00 p.m. For more information contact **Jim Robison** at 503-285-4805, or www.portlandharborcag.info

## What's Next?

EPA is working with the Lower Willamette Group to finalize the remedial investigation, the ecological risk assessment, and the feasibility study which evaluates cleanup alternatives for Portland Harbor. Based on the final remedial investigation and feasibility study, EPA will develop a proposed cleanup plan which is anticipated in 2014. There will be a series of public information sessions to discuss the proposed plan and an opportunity for formal public comments. Until then, EPA will continue to meet with the public to provide updates, answer questions, and listen to community concerns.

United States Environmental Protection Agency

Region 10

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## Where Can I Find More Information?

**Sign up to receive news, updates, and meetings notices:** http://bit.ly/ptIndhrbr

**Copies of the full assessment report are available at the following locations:**
EPA website www.epa.gov/region10/portlandharbor, or contact Alanna Conley for CD-ROM copies.

**Multnomah County Central Library**
(Government Documents)
801 SW 10th Avenue
Portland, OR 97205
https://multcolib.org/library-location/central/events

**EPA Region 10 Oregon Operations Office**
805 SW Broadway St., Suite 500
Portland, Oregon 97205
503-326-3250
(call for an appointment)

**EPA Region 10 Superfund Records Center**
1200 Sixth Avenue, Suite 900
ECL-076
Seattle, WA 98101
206-553-4494
(call for an appointment)

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*If you need materials in an alternative format, please contact Alanna Conley at 503-326-6831*

* **TTY users please call the Federal Relay Service: (800) 877-8339 and ask for Alanna Conley at the above phone number*